(*b*) Though our modern bards call each of the solstitial quarter days an Alban, there is very little authority for such a use of the name. What appears likely is that Alban became a name of the midsummer festival, and that a bardic scribe at first wrongly applied the name to the other quarter days. The Alban of the bards covered three days, and each day is specially named. The first is the Vigil of the Alban, the second is the Alban itself, and the third is the Banquet of the Alban.

(4) Why have the Welsh made so much of the name Alban? The reason may be found in the association of the name with Caerleon-upon-Usk.

(*a*) There are some ruins near that ancient city still called Mount St. Alban's.

(*b*) Mr. Wade-Evans has made out a good case for localising Alban's martyrdom at that spot (in "Archæologia Cambrensis," about two years ago).

(*c*) Geoffrey of Monmouth tells us of a great observatory or school of astronomers in or near that city.

St. Alban's Day being the chief day of the year, and an observatory bearing his name, probably, at Caerleon being apparently the Greenwich of Wales at one time, it is no wonder that the Welsh bards have adopted the name as a solstitial epithet without ever a mention of Alban's martyrdom.

We have in Wales a very modern instance of the same process. In some districts June 22 is observed as Gwyl Barna, the Vigil of Barnabas. St. Barnabas's Day is the 11th, and in the seventeenth century it coincided with the solstice; but since 1752 it has been in those parts associated with the 22nd, and Gwyl Barna is now a name of the solstice. In the neighbourhood of Llandeilo Talybont, Glam., it is the custom of the farm labourers to get together the hay-making implements on the morning of Gwyl Barna, before going to a solstitial fair in the neighbourhood.

JOHN GRIFFITH.

Llangynwyd, Glam.

### The Sun's Motion with respect to the Æther.

So far as I know, it has not been pointed out that the velocity of light, as deduced from the observed times of occultation of Jupiter's satellites, is affected to the first order by the motion of the earth and Jupiter with respect to the æther. Taking the times best suited to such observations, when the distance between the two planets is very nearly a maximum or a minimum, there will be no appreciable relative velocity in the line of centres, and, to a first approximation, the velocity with which light from Jupiter approaches us is then made up of the true propagation-velocity increased by the common velocity-component of the two planets in the direction earth to Jupiter.

In order to determine the sun's motion with respect to the æther, the values for the apparent velocity of light deducible from the observed times of occultation might be analysed, so as to discover any systematic differences depending on the direction of the line of centres. Only very small corrections would be needed on account of the motion of the planets in their line of centres relatively to the sun. The probable absolute error in the finally deduced velocity of the sun (relatively to the æther) would be of the same order as that affecting the finally deduced velocity of light. The quantity to be determined might perhaps be swamped by the errors of observation, but even so a superior limit could be assigned to the sun's velocity through the æther. Two of the three rectangular components of that velocity being measured in the plane of the ecliptic, the determination of the third component would unfortunately be very badly conditioned. It may be some consolation, however, to reflect that a knowledge of our motion with respect to the æther is not theoretically unattainable.

Again, if the mean æthereal density is either less or greater where atomic matter is present than in free æther, it appears from some results which I have lately obtained in connection with a modified theory of gravitation that motional forces would be experienced (for example) by two bodies moving with uniform translational velocity through the æther. These forces would be proportional to the product of the masses of the two bodies, to the square of the velocity of translation, and inversely to the fourth power of the distance between the bodies. They would be equal in magnitude and opposite in direction, but would not in general act in the same line, so that an elongated body, partaking of the earth's diurnal and orbital motion, would in general be acted on by a couple. This couple would vary as the diurnal motion changed the orientation of the body, and if the variations were measurably great, we should have the means of determining, save for a constant factor and an ambiguity of sign, the velocity of the earth with respect to the æther at any point of its orbit. Observations at three or more points of the orbit would enable us to evaluate the constant factor and to remove the ambiguity of sign, thus determining the velocity of the sun with respect to the æther.

The effects referred to might or might not be detectable, but by means of quite simple apparatus they could be tested for with great delicacy. I hope shortly to publish a fuller account of the analysis on which the above conclusions are based.

C. V. BURTON.

Cambridge, July 29.

### The Dog's Sense of Direction of Sound.

OUR dog, Spot, of the intelligence of which an instance has been recorded in NATURE, is peculiarly sensitive to sound. The following instance may be worth recording. On Sunday, July 21, a heavy storm of thunder and lightning with rain broke over Wick. I sat in the porch of our house watching—Spot with me. The lightning was frequent, and the thunder played round in all directions—over Bath six miles to the east and Bristol six miles to the south-west.

Spot barked at each clap or rumble and rushed forward, always *towards the direction* from which the thunder appeared to come; the lightning affected him in no way. It was laughable when the thunder appeared to come from no definite direction, but to play round us. For then he ran, barking, over the lawn and round the trees as if angered by a sound he could not locate. I observed carefully what he did for perhaps half an hour, and I think Spot located the directions of sound at least as quickly as I did myself.

F. C. CONSTABLE.

## *THE INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.*

THE second International Congress on School Hygiene was opened on Monday last at the University of London by Lord Crewe, in the presence of a large gathering, which included delegates from all the countries of Europe, the Colonies, and North and South America, in addition to representatives of administrative bodies in Great Britain. We shall publish at a later date an account of the proceedings of the Congress, but are pleased meanwhile to direct attention to the warm interest taken by the King in the objects for the consideration of which the congress was convened; indeed, but for the King's intervention, the congress would probably have been anything but a success, as will be seen by the opening remarks of the president, Sir Lauder Brunton, F.R.S.

Lord Crewe, Lord President of the Council, in opening the congress, said the first duty he had to perform in connection with the opening ceremony was a very agreeable one. He had a gracious command from the King to express to them the interest with which His Majesty regarded the subjects with which the congress was concerned and his hopes that its discussions might be a great success. His Majesty had further commanded him to express his regret that, owing to his enforced absence from London, he was unable to receive those who were to attend the congress. He was also privileged as a member of the Government to express the same desire on their part that the proceedings of the congress might be crowned with success, and on behalf of the Government to offer them all a hearty welcome. It was not in a strict sense an official conference. It was not subject to official control, it was not run on official lines, and it was not subsidised by official money. That, from many points of

view, he took to be a distinct advantage. It lent freedom to the discussions which would take place; but, on the other hand, it must not be supposed that the Government of this country did anything else but take a keen interest in the proceedings of the congress, and they were well aware that the public departments concerned with the subjects for discussion hoped to learn much in the course of the next few days. He hoped that the result of their meeting might have the best possible effects. It must be a good thing for those belonging to different nations and used to different systems to interchange ideas and to engage in a most honourable and friendly rivalry as to which nation and which system could best carry out the objects they all had in view. He hoped, therefore, that their meetings might leave some permanent mark on the subjects, and that their deliberations would do much to advance the knowledge of school hygiene, and to remove what they must all regard as having been a serious blot on the civilisation of the world.

After speeches by Lord Londonderry and Lord Fitzmaurice, Sir Lauder Brunton delivered his presidential address, from which we print the following extracts :—

After welcoming the delegates, he said that he was sure that the first duty which they would wish him to perform as their president was to voice their thanks to the King, patron of the congress, for the gracious welcome which they had received from him through his representative, Lord Crewe. But it was not for words of welcome alone that the congress owed a debt of gratitude to His Majesty. It had also to thank him for most substantial help at a critical time. A fortnight ago things seemed to be going all wrong with the congress; it threatened to be more or less of a failure. At this juncture, through the kind intervention of Mr. Alfred de Rothschild, His Majesty graciously granted him (Sir Lauder Brunton) a personal interview, and asked him to explain the circumstances. He did so, and in a few minutes the King had put everything right, and things, which had been going all wrong before, from that moment went right, and the congress which threatened to be more or less of a fiasco now bid fair to be a brilliant success. Its success would not be due only to the numbers attending it nor to the enthusiasm of its members, but to the work which they trusted it would accomplish, not only during the time of its sitting, but after it was over, for they hoped that arrangements would be made by which its work would become permanent, and would be carried on in the intervals between successive congresses. For his services to the congress the King not only deserved the gratitude of the congress itself, but also of all school children, born and yet unborn, who might owe to its labours health, strength, and happiness.

They were met from every part of the civilised world, throwing aside every subject of disagreement, and were intent only on one common object—the health of the children. Parental affection was one of the strongest and most fundamental instincts, not only in man, but even in the lower animals. They all desired that their children should grow up healthy, strong, and happy; and they were all anxious to take the best means at their disposal to obtain such a desirable end. Amongst these, one of the chief was education. In savage communities, where the chief objects of life were war and hunting, education was comparatively simple, and was thoroughly well adapted to the end in view. But in civilised communities the complexity of conditions sometimes led, and indeed had led, to mistakes in education, and the very meaning of the word had been forgotten, so that, instead of drawing out and developing in every child all its possible powers of body and of mind—so that in its life it should do the very best of which its nature was capable—education had degenerated into a system of cramming and cultivating one or two faculties of the mind, and especially that of memory, to the injury of others, while the condition of the body as the servant of the mind had, to a certain extent, been lost sight of in this country. They were now awakening to the necessity of attending to the body if the mind was to be developed, and many efforts were being made in various countries to secure a system of mental and physical training which would ensure the best development of children. The great advantage of a congress like this was that the systems employed in various places were brought together and compared, so that each country might learn from the others the useful plans they ought to adopt and the errors they ought to avoid.

One of the most important subjects of all in this respect was that of medical inspection in schools, because this was the keystone of physical education. Without it, the defects of eyes, ears, nose, and teeth which affected individual scholars could not be ascertained, and so those children remained backward in their learning, suffering in their bodies and so much damaged in physique that they were unfitted for many occupations, could not enter the Army, and went to swell the numbers of the criminal classes.

The physical training of children during the period of growth was one of the best means of ensuring proper development. In some countries this was carried out more especially by systematic exercise, which developed the muscles, while in this country we depended more upon games. Both of these systems left something to be desired, and the ideal system was to be looked for in a proper combination of both. One of the most difficult, and yet one of the most important, questions of school hygiene was how to combine educational work with physical training, so that both should be productive of benefit, and not of injury, to the child. Proper alternation of mental and physical exercise was one means of preventing this, but attention must also be paid to the nature of the physical exercise.

But all attempts to develop a healthy race would be ineffectual if they took care only of the children who were at school now. They must look a generation ahead, and consider that the children who were at school now fifteen or twenty years hence would be the fathers and mothers of a fresh set of school children whose physique would depend very much upon the way they had been treated and fed in their infancy and childhood. It was, therefore, of the utmost importance that boys and girls should be instructed in the laws of health, the need of cleanliness, the dangers of impure food or water, and the evils of alcoholic abuse. Such instruction should not be given by lectures, which were likely to be misunderstood or forgotten, but by actual demonstration.

In conclusion, the president said that he felt sure that by cooperation they would obtain the object they had in view—namely, the health of the children.

At the conclusion of the meeting the following telegram was sent to the King :—

To His Majesty the King, Royal yacht *Victoria and Albert*, Cowes.—Your Majesty's most gracious message at the opening of the International Congress of School Hygiene by Lord Crewe this afternoon was received with the most humble and most respectful thanks of the delegates from foreign Governments and public authorities and the members of the meeting assembled. Signed, LAUDER BRUNTON, president, JAMES KERR and E. WHITE WALLIS, honorary general secretaries.

And in the evening, at the first general meeting and reception of delegates and members, the following reply from His Majesty was read :—

To Sir Lauder Brunton, 10 Stratford Place, London, W.

The King desires me to thank you and the honorary general secretaries for the telegram he has received from you and to express his hope that the ceremony to-day went off well. (Signed) KNOLLYS. Cowes.

## THE BRITISH ASSOCIATION AT LEICESTER.

AS anticipated, the British Association has been fortunate in its choice of Leicester for this year's annual meeting, and we congratulate the association because of the high character of its proceedings, initiated by the presidential address, and maintained in the special discourses of Mr. Duddell, Prof. Miers, and Dr. Dixey, and the sectional papers, and the town itself because of its genuine and hearty welcome to its many visitors, and the carefully con-